

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

The Commissioner of Patents and Trademarks

Washington, D.C. 20231

Sir:

Transmitted herewith for filing is a:

jc803 U.S. PTO



08/22/00

jc531 U.S. PTO  
09/642828  
08/22/00☐ New Patent Application.☒ Continuation Application of Serial No. PCT/NL99/00791☒ Filed: December 21, 1999. A Rule \_\_\_\_\_ filing.INVENTOR: Karel van den BergFOR: A FEEDING AND/OR DRINKING COLUMN ON BEHALF OF ANIMALS

Enclosed are:

☒ 3 sheets of drawing(s): ☐ Formal ☒ Informal☒ An Assignment of the invention to LELY RESEARCH HOLDING AG of  
ZUG, SWITZERLAND, the original to be returned to the undersigned attorneys.☒ A certified copy of a DUTCH APPLN. NO. 10108987 filed Dec. 24, 1998  
The right to priority is claimed pursuant to 35 U.S.C. 119.☐ An Associate Power of Attorney.☒ A Statement Claiming Small Entity Status.☒ Preliminary Amendment.

FEES:

(Col. 1.)	(Col. 2.)	SMALL ENTITY
FOR:	NO. FILED	NO. EXTRA
BASIC FEE		
TOTAL CLAIMS	30 -20	10 x 9
INDEP. CLAIMS	-3	
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT		

OTHER THAN A  
SMALL ENTITY

RATE	FEE
	\$ 345.00
X	90.00
X	

RATE	FEE
	\$
X	
X	

ASSIGNMENT FEE:

\$ 40.00

TOTAL FILING FEE:

\$ 475.00

☒ Filing Fee to be calculated on the basis of the Preliminary Amendment submitted herewith.☐ Please charge Deposit Account No. 13-2000 in the amount of \$ \_\_\_\_\_. A duplicate of this sheet is enclosed.☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 13-2000. A duplicate of this sheet is enclosed.☒ A check in the amount of \$ 475.00 to cover the filing fee is enclosed.

MASON, MASON &amp; ALBRIGHT

By

Registration No. 19,082

Attorney of Record PENROSE LUCAS ALBRIGHT

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Applicant or Patentee: Karel van den Berg 4176/PCT/US  
Serial or Patent No.: to be assigned; Attorney's Docket No. 8553/189  
Filed or Issued: herewith  
For: A FEEDING AND/OR DRINKING COLUMN ON BEHALF OF ANIMALS

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS  
(37 CFR §1.9(F) AND §1.27(C)) - SMALL BUSINESS CONCERN**

I hereby declare that I am:

- ☐ the owner of the small business concern identified below:  
☒ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN: Lely Research Holding AG

ADDRESS OF CONCERN: 20 Bützenweg, CH-6300 ZUG  
Switzerland

I hereby declare that the above-identified small business concern qualifies as a small business concern as defined in 13 CFR §121.3-18, and reproduced in 37 CFR §1.9(d), for purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this Statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled A FEEDING AND/OR DRINKING COLUMN ON BEHALF OF ANIMALS by inventor(s) Karel van den Berg described in:

☒ the specification filed herewith.

☐ Application Serial No. \_\_\_\_\_, filed \_\_\_\_\_.

☐ Patent No. \_\_\_\_\_, issued \_\_\_\_\_.

If the rights held by the above-identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below\* and no rights to the invention are held by any person, other than the Inventor, who could not qualify as a small business concern under 37 CFR §1.9(d) or by any concern which would not qualify as a small business concern under 37 CFR §1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

\*Note: Separate Verified Statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR §1.27)

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ INDIVIDUAL

☐ SMALL BUSINESS CONCERN

☐ NONPROFIT ORGANIZATION

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ INDIVIDUAL

☐ SMALL BUSINESS CONCERN

☐ NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this Application or Patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR §1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the Application, any Patent issuing thereon, or any Patent to which this Verified Statement is directed.

NAME OF PERSON SIGNING: van der Lely, Alexander

TITLE OF PERSON OTHER THAN OWNER: director

ADDRESS OF PERSON SIGNING: 44 Jan Witkampstraat, 3065 NA Rotterdam  
the Netherlands

SIGNATURE \_\_\_\_\_ DATE July 26, 2000

Alexander van der Lely

[illegible]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Karel van den Berg

APPLICATION BRANCH

For: A FEEDING AND/OR COOLING  
DRINKING COLUMN ON BEHALF OF ANIMALS

To The Honorable Commissioner of Patents  
and Trademarks  
Washington, D. C. 20231

This Preliminary Amendment is for the above-identified Application which is being filed under 35 USC §111(a) as a Continuation of co-pending International Application No. PCT/NL99/00791, filed December 21, 1999, International Publication No. WO 00/38505 published January 6, 2000. Priority based thereon of December 21, 1999 is claimed is further claimed for December 24, 1998 based on Dutch Patent Application No. 1010898.

A Substitute Specification is submitted herewith. It is requested that the Substitute Specification be substituted for the Specification of International Application No. PCT/NL99/00791, which is also submitted as the Specification for the instant Application. No new matter has been added to the Substitute Specification. However, the Substitute Specification is amended

by the insertion of:

--RELATED APPLICATION:

This Application is a continuation of International Application No. PCT/NL99/00791, filed December 21, 1999.--, which is, it is submitted, an appropriate amendment. A marked-up copy of the Specification of the invention is also submitted herewith for comparison purposes.

IN THE CLAIMS:

On page 7, immediately following the heading "CLAIMS", please insert: --Having disclosed my invention, what I claim as new and to be secured by Letters Patent in the United States of America is--.

Please cancel all claims except Claims 1 and 2 without prejudice.

Please rewrite Claims 1 and 2 as follows:

Claim 1 (Amended). A [feeding and/or drinking column] column for feeding or drinking or both for animals, [such as cows,] said column comprising a central axis surrounded by [several] a plurality of reservoirs, [(3) and] feeding troughs [(6), as well as] at least one metering device [(5)] for dosing feed [and/]or drink or both from at least one of the reservoirs [(3)] to at least one of the feeding troughs [(6)], [characterized in that] the [feeding and/or drinking] column [is] being provided with a framework [(1) located] around the central axis, to which framework, [(1) primarily] the feeding troughs [(6)] and reservoirs [(3)] are fitted.



[illegible]

Claim 37. A column in accordance with Claim 1 which comprises a weighing device which is interconnected to said framework for weighing material delivered to said feeding troughs from said reservoirs.

Claim 39. A column in accordance with Claim 1 which comprises a metering device which is disposed between at least one of said reservoirs and at least one of said feeding troughs.

Claim 41. A column in accordance with Claim 40 wherein said metering device comprises mixing means for mixing materials present in said storage room.

Claim 43. A column in accordance with Claim 42 comprising a drive unit for moving said metering device about said central axis.

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delivered.

Claim 51. A method in accordance with Claim 49 wherein during delivery of fodder into a feeding trough the amount of feed received from the selected reservoirs is metered to correspond to the nutritive needs of the individual animal feeding at such feeding trough.

Claim 52. A method in accordance with Claim 49 wherein said metering device comprises a weighing device in the feeding trough wherein the identified animal is feeding.

Claim 53. A method in accordance with Claim 52 wherein said weighing device determines the eating speed of the individual animal who is eating in said trough and said eating speed is stored in a computer memory.

Claim 54. A method in accordance with Claim 49 wherein the nutritive needs of individual animals are determined on the basis of data concerning such animal stored in a computer memory.

Claim 55. A method in accordance with Claim 49 comprising the further step of automatic removing fodder which has not been consumed by the individual animal from the feeding trough involved.

Claim 56. An apparatus for automatically feeding animals which comprises a circular framework disposed about a vertical axis which has on its upper aspect a storage house that contains a plurality of feeding reservoirs, a plurality of delivering means interconnected to framework disposed below said storage house, a plurality of vertical partitions extending radially from said framework, a plurality of feeding troughs disposed below said





REMARKS

The purpose of this Preliminary Amendment is: (1) To provide a Substitute Specification and an Abstract which are in formats customary for U.S. Patent Applications and which are also expressed in less stilted and more readable idiomatic english; (2) To amend the claims in this Application to eliminate multiple-dependent claims therefrom; (3) To establish a Filing Fee; and (4) To amend the claims so that they are more nearly in a format customary of U.S. Patent Applications. It is to be understood, nevertheless, the claims originally set forth remain part of the original disclosure with the Application. As amended, the Application has thirty (30) claims, three (3) of which are independent claims. Accordingly, a Filing Fee of \$435.00 appears to be required, and our check to cover same is submitted herewith. If this is in error, the Commissioner of Patent and Trademarks is authorized to debit or credit our Account No. 13-2000 as appropriate.

Respectfully submitted,

MASON, MASON & ALBRIGHT

By 

Penrose Lucas Albright  
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Arlington, Virginia 22202  
Tel. (703) 979-3242

Filed: August 22, 2000  
Attached: Substitute Specification and  
marked-up copy for comparison  
Abstract of Disclosure

### ABSTRACT OF THE DISCLOSURE

An apparatus for feeding and providing water to animals, such as cows or goats, comprises a framework having a central axis. A plurality of reservoirs are connected to a framework in its upper aspects and feeding troughs are disposed below the reservoirs. At least one metering device for metering feed or drink or both to the feeding troughs is provided between the reservoirs and feeding troughs. Each feeding trough has a sensor for identifying an animal feeding at the feeding trough. The metering device which delivers feed or water or both to the feeding trough is controlled by a computer memory to deliver selected fodder from the reservoirs to each feeding trough in accordance for the nutritional needs of the animal which is at said trough. The control of the fodder relates both to the speed that the animal is eating and to data stored in the memory as to the nutrition needs of that animal. Vertical partitions are disposed between feeding troughs and separate same sufficiently so that the animals do not disturb each other. A magnetic separation member, which may be an electromagnet, is provided to remove any metal which may be mixed with the fodder delivered to the feeding troughs. The components of the apparatus can be connected to the framework without tools.

**SUBSTITUTE SPECIFICATION**

**Inventor:** Karel van den Berg

**Title:** A FEEDING AND/OR DRINKING COLUMN ON  
BEHALF OF ANIMALS

**RELATED APPLICATIONS:**

This is a Continuation of International Application No.  
PCT/NL99/00791, filed December 21, 1999.

**FIELD OF INVENTION:**

The invention relates to a column for feeding or drinking or both by animals, such as cows, said column comprising a central axis surrounded by several reservoirs and feeding troughs, as well as at least one metering device for dosing feed or liquid from at least one of the reservoirs to at least one of the feeding troughs.

**BACKGROUND OF THE INVENTION:**

A disadvantage of known constructions is the size of the feeding or drinking column as a result of which the latter occupies much space in the shed. Furthermore, its construction is costly because components are used that are quite variable, depending on the number of animals to be fed and the specific wishes of the user.

**SUMMARY OF THE INVENTION:**

An object of the present invention is to obviate the above drawbacks. For such purpose the column feeding or drinking or both is provided with a framework located around a central axis, to which framework primarily the feeding troughs and reservoirs are

fitted. In this manner the construction occupies little space. Compactness may be increased in that a cross-section of the framework perpendicular to the central axis is substantially circular. There is also obtained a great accessibility of the feeding troughs in that the circumference of the feeding column is substantially circular. This makes it possible for the livestock to reach the feeding troughs easily from all directions. In this manner the capacity of the column for feeding or drinking or both can be utilized as efficiently as possible.

The column is providing with partitions disposed between the feeding troughs and having such dimensions that they prevent the animals from disturbing each other during eating or drinking, or from eating one another's feed. In this manner the animals are able to eat quietly, without being distracted by animals in the vicinity of the feeding troughs. The shortest distance between two adjacent partitions equals approximately the width of the outside of the feeding trough. Thus there is again achieved a great compactness of the feeding column. In a preferred embodiment of the invention, the number of partitions equals the number of feeding troughs.

The column in accordance with the invention can be easily be assembled because the components fitted to the framework are detachable. One or more components can be disassembled without tools being used, so that they can easily be fitted to the framework and be removed therefrom. The aforementioned components comprise a partition or a reservoir or a feeding trough or a



In a preferred embodiment of the invention, at a specific radius of the circular circumference of the framework the number of feeding troughs for feeding cows is twelve.

According to another inventive feature, the column is provided with at least one weighing device which is suitable for being used in a feeding trough or a metering device on both. By means of said weighing device it is possible to regulate the amount of feed in the metering device or the feeding trough or both. At least part of the weighing device is in particular movable about a central axis. Therefore, one or more weighing devices that can be used both for the metering device and for the one or more feeding troughs, will suffice. This has advantage that the cost of several weighing devices can be saved.

According to an inventive feature, the metering device is disposed between at least one reservoir and at least one feeding trough. In this manner it is achieved that the feed flows by gravitational force from a reservoir via the metering device to the feeding trough, so that separate drive means are not required. The metering device comprises at least one storage room, so that the feed or the ingredients thereof are not directly supplied to a feeding trough. The metering device may also comprise mixing means for mixing the material present in the storage room. The animals are thus prevented from eating selectively only specific feed ingredients. In a preferred embodiment of the invention, the metering device is movable about a central axis, and in particular rotatable about its central axis, so that it is possible to serve

several feeding troughs by means of the metering device. To that end, according to an inventive feature, for moving the metering device the latter is provided with a drive unit.

In accordance with the invention, the feeding column of the invention further comprises removing means for removing substances that are unfit for consumption from the flow of feed. In this manner undesired feed ingredients, such as metal objects and plastics, can be removed from the feed. The removing means comprise at least one magnet or at least one electromagnet or at least one reel or any combination thereof. With the reel it is possible to remove metal objects from the flow of feed by means of eddy currents.

The column in accordance with the invention is provided with identification means for identifying an individual animal, while the column is capable of operating fully automatically. According to an inventive feature, before the animals are fed by means of the column, the individual animal is identified, after which, by means of the metering device, the feed is composed of ingredients emanating from one or more reservoirs, according to the nutritive needs of the individual animal, and the feed is supplied to the feeding trough. By means of a weighing device in the metering device, the amount of feed corresponds to the nutritive needs of the individual animal. In accordance with another inventive feature, during pouring the feed in to a feeding trough, the amount of feed is correlated to the nutritive needs of the individual animal by means of a weighing device. Finally the amount of feed



can also be made to correspond to the nutritive needs of the individual animal by means of a weighing device in a feeding trough. Depending on the location of one or more weighing devices in the column and the assembly of the various components of the column, various configurations of various components are possible, while in the various configurations the weight of the feed supplied can each time be determined.

By means of a weighing device, which is in connection with the feeding trough, the eating speed of an animal is determined and the value thereof is subsequently stored in a computer memory. The nutritive needs of the individual animal are determined with the aid of one or more values stored in a computer memory and relate to the eating speed of the individual animal. The eating speed of an animal having greater nutritive needs will be considerably higher than that of an animal having small nutritive needs. The small nutritive needs may result for example from an animal's illness. Thus, the eating speed also relates to the animal's condition. According to a last inventive feature, the feed that has not been consumed by the individual animal is automatically removed from the feeding trough with the aid of removing means.

#### **BRIEF DESCRIPTION OF THE DRAWINGS:**

The invention will now be explained in further detail with reference to the figures.

Figure 1 is a side elevational view of the framework for the invention column provided with a storage room;

Figure 2 is a plan view of the framework according to cross-

section taken on lines II-II in Figure 1;

Figure 3 is a broken vertical cross-sectional view of a column for feeding or drinking or both in accordance with the invention;

Figure 4 is a plan view of the column of the invention provided with several reservoirs.

**DETAILED DESCRIPTION OF THE PREFERRED INVENTION:**

In the embodiment shown in Figure 1, a framework 1 has a substantially circular circumference. At the upper side of framework 1 is a storage room 2 consisting of several reservoirs 3. On framework 1 facilities are provided for placing reservoirs 3.

Framework 1 is also provided with partitions 4 which are detachably arranged on framework 1. Framework 1 is preferably designed as a steel tubular construction.

Figure 2 is a cross-section taken on line II-II of Figure 1. Framework 1 is divided into three segments per quarter. In this embodiment, a total of twelve cows can be fed at the same time.

Figure 3 is a vertical cross-section of the feeding column in accordance with the invention, showing framework 1, reservoirs 3, partitions 4, a metering device 5 which may be provided, if desired, with a storage room, feeding troughs 6, identification means 7 and a drive unit 8 for metering device 5. Because of the cylindrical geometry of the column the constructive occupies little space, while the column is optimally accessible to the animals from all directions. In metering device 5 there is disposed an electromagnet 9 by means of which metal objects are removed from

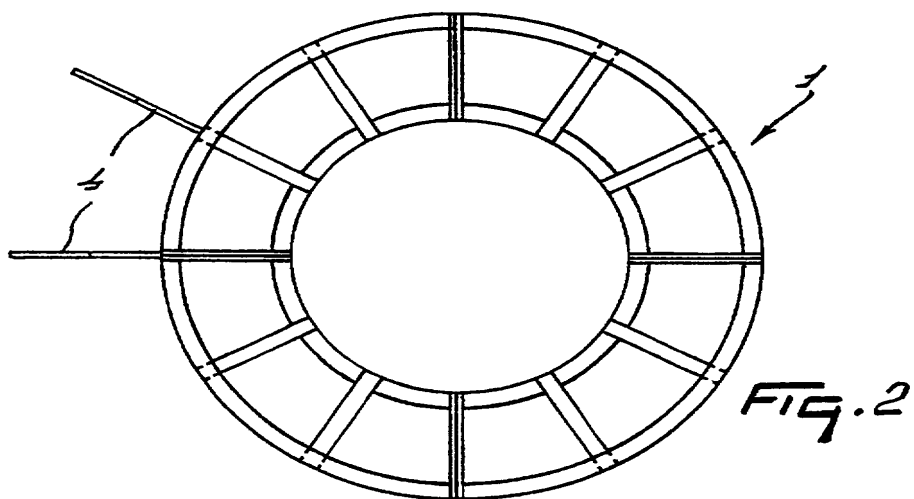
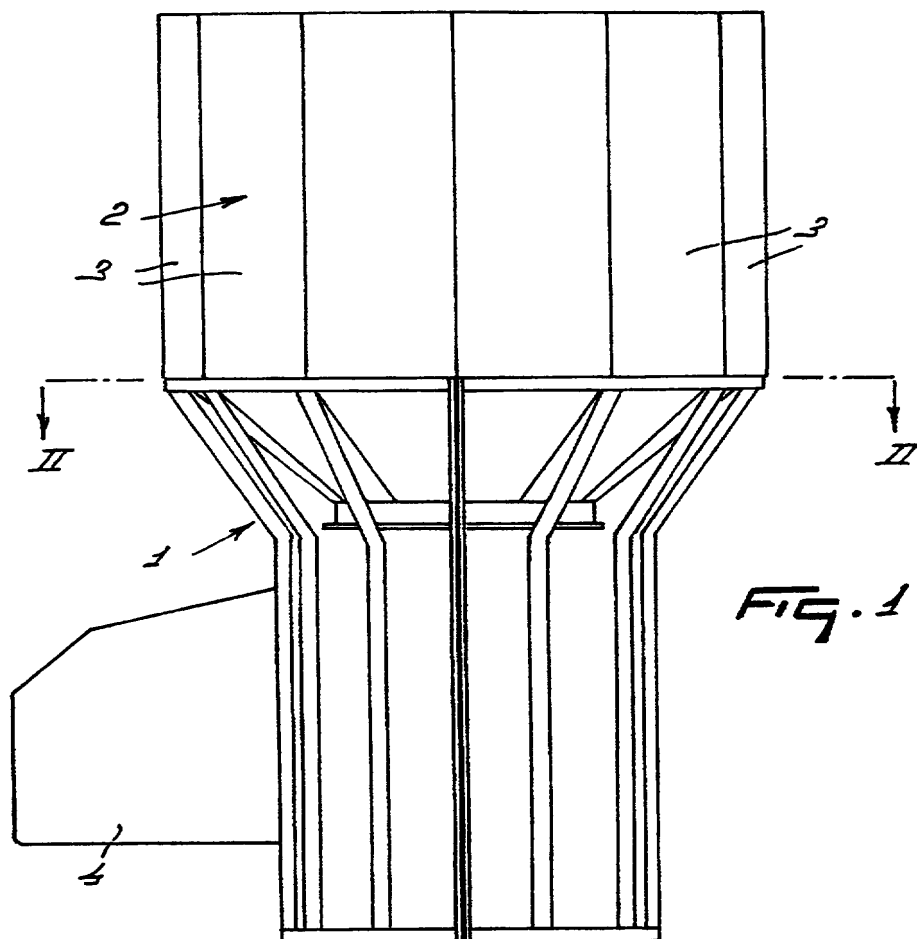
the flow of feed.

Figure 4 is a plan view of the column of the invention showing reservoirs 3 with filling apertures 10, framework 1 and partitions 4.

Although I have disclosed the preferred embodiments of my invention, it will be understood by those skilled in the art that it is capable of other adaptations and modifications within the scope of the following claims.

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SCAN 9

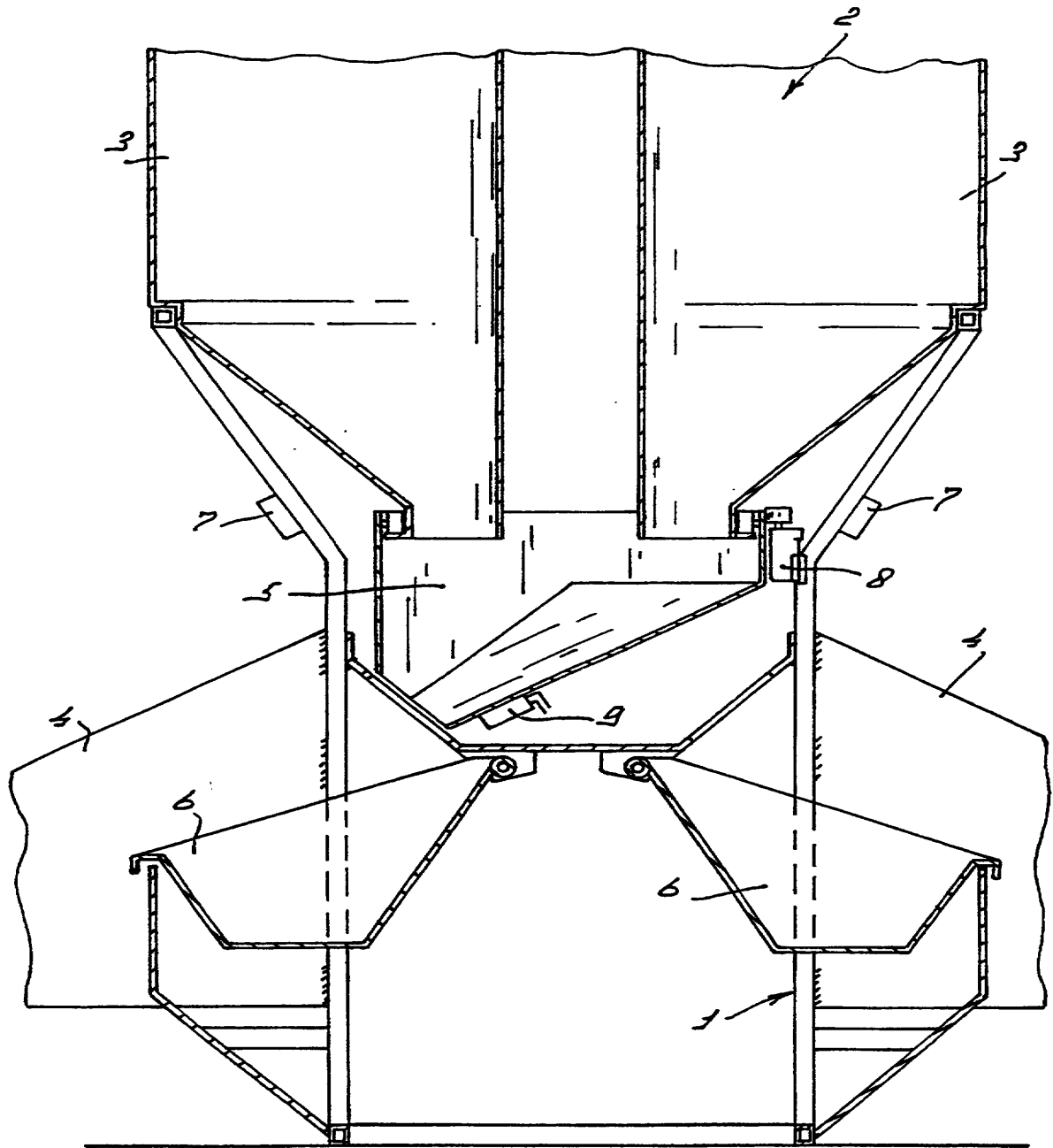


FIG. 3

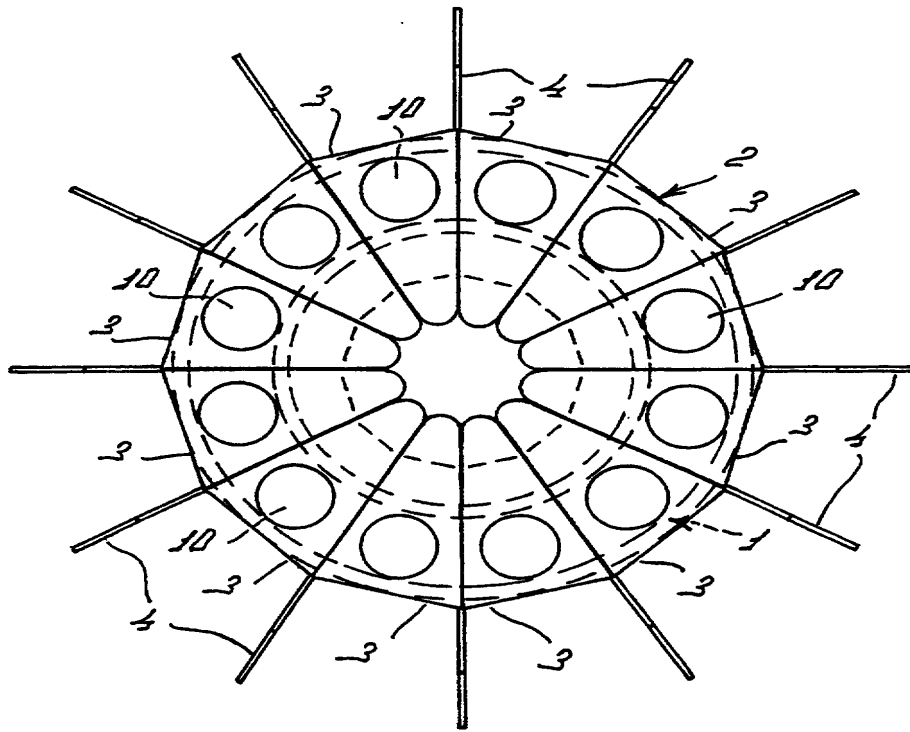


FIG. 4

## DECLARATION AND POWER OF ATTORNEY (SOLE)

As the below named Inventor, I hereby declare that:

My residence, post office address, and citizenship, are as stated on the following page of this document next to my name; and

I believe I am the original, first, and sole Inventor of the subject matter which is claimed and for which a patent is sought under and in accordance with applicable statutes of the United States of America (Title 35, United States Code) on the invention entitled:

A FEEDING AND/OR DRINKING COLUMN ON BEHALF OF ANIMALS

the specification of which:

☒ is attached hereto.

☐ I was filed \_\_\_\_\_, Application Serial No. \_\_\_\_\_, and was amended \_\_\_\_\_ [if applicable].

I further hereby declare that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I do not know and do not believe my invention, as described in the subject Application, was ever known or used in the United States of America before my invention thereof, or patented or described in any printed publication in any country before my invention thereof, or more than one year prior to this Application.

I acknowledge the duty to disclose information which is material to the examination of this Application, as required by statutes of the United States of America and implementing rules (37 CFR §1.56(a)).

I hereby claim foreign priority benefits under 35 U.S.C. §119 and/or §365 of any foreign application or applications for patent or Inventor's certificate listed below. Also, unless otherwise set forth below, there is no foreign application for patent or Inventor's certificate having a filing date before that of the application on which priority is claimed.

### PRIOR FOREIGN & INTERNATIONAL APPLICATION(S)

<u>Number</u>	<u>Country</u>	<u>Date Filed</u>
1010898	the Netherlands	24.12.1998
OCT/NL99/00791	(WO 00/38505) PCT	21.12.1999

### PRIORITY CLAIMED

<u>Yes</u>	<u>No</u>
X	
X (to extent permitted by law and regulation)	

I hereby claim the benefit under 35 U.S.C. §120 of any United States Application or Applications listed below. Insofar as the subject matter of each claim of this application is not disclosed in the prior listed United States Application or Applications in the manner provided by the first paragraph of 35 U.S.C. §112, I acknowledge the duty to disclose material information as required by statute and implementing rules (37 CFR §1.56(a)) which became available between the effective filing date of the prior application and the effective national or PCT international filing date of this application.

<u>Serial No.</u>	<u>Date Filed</u>	<u>Status</u>
-------------------	-------------------	---------------

I hereby appoint as my attorneys, with full powers of substitution and revocation, to prosecute this Application and transact all business in the United States Patent and Trademark Office connected herewith:

Penrose Lucas Albright, Reg. No. 19,082; William B. Mason, Reg. No. 18,120; and Eric S. Albright, Reg. No. 39,087 (Patent Agent); 2306 South Eads Street, P.O. Box 2246, Arlington, Virginia 22202.

Correspondence and telephone communications should be directed to Penrose Lucas Albright, Esq., MASON, MASON & ALBRIGHT, P.O. Box 2246, Arlington, Virginia 22202-0246, Telephone: (703) 979-3242 (local), Facsimile: (703) 979-2526 (local).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001, and that such willful false statements may jeopardize the validity of the Application or any patent issuing thereon.

van den Berg, Karel

Inventor's Full Name (Print or Type)

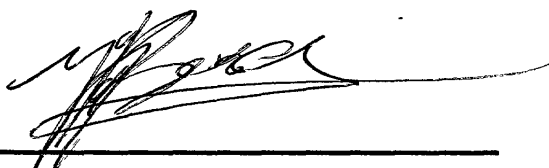
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Country of Citizenship



Inventor's Signature

2971 BR Bleskensgraaf, the Netherlands

City/County, State/Province

City/County, State/Province

July 26, 2000

Date Signed

(Signature should conform to name as printed or typewritten)